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Effects of Closing Public Chronic Disease Hospitals: Relocation and Survival of Older Patients

UNIVERSITY OF MASSACHUSETTS AT BOSTON

Effects of Closing Public Chronic Disease Hospitals: Relocation and Survival of Older Patients

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by

Dominique G. Ingegneri, Ph.D.

Francis G. Caro, Ph.D.

September 1994

Gerontology Institute
University of Massachusetts Boston
100 Morrissey Boulevard
Boston, MA 02125-3393
(617) 287-7300

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University of Massachusetts Boston
100 Morrissey Blvd.
Boston, MA 02125-3393
(617) 287-7300

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Relocation and Survival of Older Patients: Effects of Closing a Public Chronic Disease Hospital

Executive Summary

During a recent period of fiscal crisis, the Commonwealth of Massachusetts closed three of its seven public chronic disease hospitals. The decision to close the facilities was announced in June of 1991. As a result, the 224 geriatric patients residing in Cushing Hospital, one of the chronic care hospitals, required relocation.

This report is the fifth in a series concerned with the impact of the closing of the hospitals. It focuses on the effects of relocation on patient survival. The purpose of this study was to determine whether the closing of Cushing Hospital was followed by a significant increase in death rates among patients. The possibility that involuntary relocation of institutionalized, chronically ill older people might adversely affect their health and survival is a long-standing concern in gerontology. Studies of previous transfers of institutionalized older people have been mixed in their results; that is, some studies have found evidence of adverse effects, other studies have found no evidence of adverse outcomes.

A focus on Cushing patients was advantageous not only because they represented most of the relocated patients. Because Cushing Hospital patients were older than those at the other facilities, they were believed to be more at risk than patients at the other facilities. Also important was the fact that unlike the patients in the other two hospitals, all of the Cushing patients had been admitted on a long-stay basis.

In order to assess the effects of relocation on patient survival, the death rates of patients in the 18 months following the transfer from Cushing Hospital were compared with the historical death rates of patients admitted to Cushing Hospital beginning on January 1, 1970.

The historical sample of patients started out closely split by sex (approximately 56% female in 1971). The proportion of female resident patients grew steadily across the period of observation so that by 1991 nearly three quarters (72%) were women. The percent of patients with short residencies continued to decline over the first decade of observation and then stabilized in the second, usually averaging between 10% and 20% during the latter time period. The average age of Cushing residents increased slightly across the two decades of observation ranging from a low of 78.2 in 1974 to a high of 84.1 in 1990.

Although there was a considerable amount of variation in the annual death rates, during the early 1980s they seemed to hover just above 20 deaths per 100 patients. A crude examination of changes in death rates immediately following the announcement of the hospital closing shows that while the death rates for the total patient population ranged from 15 to 25.5 per 100 in the period preceding the closing, the death rates following the closing announcement ranged from 21 to 59 per 100 patients. Thus it appears that the closing of Cushing Hospital may have had some effect on patient mortality rates.

Death rates among transferred patients were remarkably high immediately following the move. Monthly death rates in the first six months after transfer appear elevated, and then steadily declined, so that transferred patients surviving the first year after transfer experienced death rates comparable to untransferred patients.

A further test of the effect of transfer on patient survival was carried out using a Cox regression procedure, which allows an examination of the risk of dying before and after transfer while controlling for the effects of sex, age at admission, and length of stay. The results indicate that patients experiencing the hospital closure had significantly reduced survival chances with a 46% greater likelihood of dying than their "untraumatized" counterparts.

The adverse effects on survival occurred in spite of great efforts on the part of Department of Public Health staff to prepare patients for the move and to minimize the risks. The adverse effects may have been the result of the age and vulnerability of the Cushing Hospital patients. The cognitive impairments of most of the patients probably also compounded difficulties in preparing them for the move.

The findings suggest that more research is needed on the circumstances under which relocation places older, chronically ill, and confused patients at risk.

Relocation and Survival of Older Patients: Effects of Closing a Public Chronic Disease Hospital

I. INTRODUCTION

During a recent period of fiscal crisis, the Commonwealth of Massachusetts closed three of its seven public chronic disease hospitals. As a result, the 224 geriatric patients residing in Cushing Hospital, one of the chronic care hospitals, required relocation. The vast majority were transferred to nursing homes which were deemed more appropriate care settings (Glickman & Caro, 1993a).[1] The Massachusetts Department of Public Health made considerable efforts to ensure the appropriateness of the new placements, to involve patients and their families in the transfer process, and to make that process as smooth as possible (Glickman & Caro, 1993a).

This report focuses on the effects of relocation on patient survival. A large body of research has developed concerning "transfer trauma"--the notion that involuntarily relocating patients of institutions has a detrimental effect on their well-being and survival (e.g., see Thorson, 1988). Because the 224 former patients of the state hospital had no choice in their transfer, questions have been raised about the potential effects of this relocation on patient survival after transfer. The purpose of this study was to determine whether the closing of Cushing Hospital was followed by a significant increase in the death rates of former patients.

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[1] A few of the patients were moved to other chronic disease hospitals and a few died before the transfer could be made.

This report is the fifth in a series published by the Gerontology Institute at the University of Massachusetts Boston, concerning the effects of the closings of the public chronic-disease hospitals in Massachusetts. Other reports in the series examined:

- The transfer process and its immediate effects on patients;
- The policy context in which the closure decisions were made, their implementation, and the relocation of patients;
- Patient perceptions of the effects of relocation;
- The effects of relocation on patient functional status; and,
- The extent to which the Commonwealth of Massachusetts has achieved cost savings as a result of the hospital closings.

II. BACKGROUND

Research concerning the effects of relocation on patient survival and functioning has produced mixed opinions on the issue. Some studies report a decline in the health and survival of transferred patients while others find improvement. Borup (1983) provides an exhaustive list of empirical studies on the effects of interinstitutional relocation on mortality. He reports that 75 percent of the 28 empirical studies found no effect of relocation on mortality while about 14 percent revealed an increase in mortality after relocation. The remainder of the studies showed both increased and decreased mortality or produced ambiguous findings.

Although the weight of evidence from earlier research suggests that relocation may not have the dire consequences for patients' health and survival once thought, research and controversy still surround this topic. It remains an issue because residents of institutions continue to be involuntarily transferred as older, inadequate, costly, or substandard facilities are closed. The potential for "transfer trauma" is raised repeatedly in the political and legal turmoil concomitant with the threatened closure of substandard or cost-inefficient facilities. Borup (1983) and Cohen (1986) describe and decry the overuse of the legal system in such matters and the "scare tactics inherent in the relocation/mortality trauma premise" (Borup, p. 241, 1983). Borup goes on to say: "Allowing continued residence in inadequate facilities under the guise that closing them down and relocating patients is a 'threat to life' is not . . . in the best interest of older persons and can scarcely be called humane" (p. 241, 1983).

At the same time, researchers and policymakers remain aware of the adverse effects produced by stressful life changes; a move to a different environment--even a better one--is characteristically a stressful life change. As a sometimes inevitable and usually stressful event, relocation is still the focus of much research. However, the scope of research questions on this topic has broadened. More recent research has focused on identifying the various aspects of the transfer process or transferred individuals that are associated with non-negative outcomes.

In this regard, research findings suggest that similarity between the environments of origin and destination produces less stress in transferred patients and results in better outcomes than transfers between dissimilar environments (Schulz & Brenner, 1977). In their theoretical analysis of the literature, Schulz and Brenner (1977) also contend that the more control over the transfer a patient perceives that she or he has, the less stressful that transfer will be. A patient is likely to perceive more control in a voluntary relocation than in an involuntary one.

Thus, involuntary transfers are associated with greater stress and poorer outcomes than voluntary transfers (Schulz & Brenner, 1977).

Research has also examined the impact of interventions in the transfer process that are intended to make relocation less stressful. The typical approach with such interventions is to prepare patients and/or their families in advance of the relocation. Preparation for transfer may involve tours of the new facility before the transfer, presentations, group and individual discussions with patients, and so forth. Occasionally, counseling may be introduced or continued after the move.

In a study of the effects of interinstitutional relocation on the health of chronic care patients in a New York hospital, Mirotznik and Ruskin (1984) credit an extensive relocation plan with the successful transfer of 45 residents. Mirotznik and Ruskin acknowledge that the successful results of relocation observed in their study may have been partially attributable to three factors: 1) two thirds of their sample were nonelderly, 2) noninterviewable patients were excluded from the study, and 3) the transfer was to a new facility next door. However, the researchers also point out that the patients were seriously ill as well as handicapped and the move was not voluntary. For the latter reasons, Mirotznik and Ruskin maintain that the observed improvement in the health of the transferred patients was unexpected and probably attributable to a multi-faceted, well-implemented relocation preparation plan.

Davis and her colleagues (1990) report similar findings in a study of involuntarily relocated patients in a county nursing home in the Midwest. They found that the mortality rate among patients following relocation was lower than at any time in the five years prior to the relocation. Davis et al. (1990) suggest that an intensive preparation effort may have contributed to the success of the transfer.

The aim of the study presented here is to examine the mortality of involuntarily relocated, long-stay chronic-care patients of the Cushing Hospital. These patients were all aged 65 or older when admitted and had been permanently placed in the Cushing Hospital. Attempts were made to provide patients and their families with a sense of control by offering, where feasible, more than one option for the new placement. In addition, staff from the Department of Public Health (DPH) were available to patients and their families for counselling and discussions prior to the move. A majority of family representatives who were later surveyed reported that they attended meetings with DPH staff regarding the move and found them helpful (Leventhal & Caro, 1992).

III. METHODS AND DATA

Methods

In order to assess the effects of relocation on patient survival, the death rates of patients transferred from Cushing Hospital are compared with the historical death rates of patients in the Cushing Hospital. Annual death rates of Cushing patients admitted during the 20 years before the closing are estimated. These rates provide a baseline for comparing the death rates of Cushing patients just before the closing was announced and in the 18 months following the closing.[2]

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[2] The mathematical formulas used to estimate the death rates are shown in the tables presenting these rates. For further explication of the derivation of these formulas, see Shryock and Siegel (1976).

A further test of the effect on patient survival is carried out using a Cox regression procedure. The Cox regression allows us to examine the risk of dying before and after transfer while controlling for the effects of sex, age at admission, and length of stay. Because the sex composition of the historical sample of Cushing patients changes over the 20 years for which we have records on patients, direct comparisons of the annual death rates for historical and transferred Cushing patients may be biased by the different survival rates of men and women. Similarly, the average length of stay in the hospital grows over the 20 years of observation and is associated with the risk of dying. Since patient admissions declined in the period just before the closure, the patient population in the hospital at the time of closure is likely to have had a longer average length of stay than the Cushing patient population in earlier periods. Finally, patients placed in the hospital later in life are expected to be more vulnerable to death than younger ones. The Cox regression procedure enables us to take all of these influences on the risk of dying into account.

Data

Although patients were transferred from three public chronic-disease hospitals, only patients transferred from Cushing Hospital are included in this analysis. The Cushing experience was singled out for investigation because the availability of data from Cushing Hospital made the study of this hospital's population more analytically feasible than the others. In the case of Cushing Hospital, all patients had been admitted on a long-stay basis. Further, summary information on all patients admitted after January 1, 1970 was readily available. Both Rutland Heights Hospital and Lakeville Hospital had admitted many short-stay patients. Separating for historical analysis those who at admission were projected as long-stay patients from those who had been projected as short-stay patients could not be done readily. The formal survival analysis, therefore, was limited to patients at Cushing Hospital. An advantage of this focus on Cushing patients was that any bias that may have been introduced by differential mortality rates between short-stayers and long-stayers was prevented by examining only the relatively homogeneous Cushing population.

There was an additional advantage to examining only the Cushing experience. As long-stay chronically-ill patients, Cushing residents were older and viewed as potentially more vulnerable to the harmful effects of relocation.

The historical data on patient survival in Cushing Hospital are derived from patient records. These records were available for all patients admitted beginning in 1970 through the time the hospital closed in November 1991 (n=1614, including transferred patients). Individual-level data on patient date of admission, date of birth, sex, date of discharge, and survival status at discharge were entered into an electronic data file.

It is important to note that because patients were permanently placed in Cushing Hospital, few patients were discharged alive. Often, live discharges from Cushing were to acute care settings where patients eventually died. Excluding the deaths of patients dying shortly after discharge could produce an underestimation of the historical mortality experience of Cushing patients. To avoid this, we searched for death records of patients discharged alive. Where a death certificate was found for patients dying in a hospital within about a year and a half of discharge the patient record was modified to reflect the actual date of death of the patient. Such cases were included as deaths in the calculation of death rates for the relevant year.

In January, 1993, the Massachusetts Department of Public Health initiated a survey of facilities to which patients were transferred to verify survival status. The survival survey was completed in late February, 1993. Survival data on the patients transferred from Cushing Hospital were also entered into an electronic data file for our study. Of the 224 patients who were in Cushing Hospital when the closing was announced in late June, 1991, 12 died before they could be transferred. Of the remaining 212 patients, 71 had died by January, 1993.[3] The survival data on the transferred patients contain information on survival status as of January, 1993, and, where appropriate, date of death. In addition, these data are linked with the historical data in order to obtain individual characteristics.

IV. FINDINGS

Table 1 shows selected characteristics of the Cushing Hospital patient population over time (for patients admitted after January 1, 1970 and residing in the hospital on January 1 of each year), or what we are calling the historical sample of patients. This group started out closely split by sex (approximately 56% female in 1971). The proportion of female resident patients grew steadily across the period of observation so that by 1991 nearly three quarters (72%) of patients were women.

The historical patient file is comprised only of data for patients admitted on or after January 1, 1970, thus in the first year of observation (1971), 100 percent of patients had been in the hospital for less than one year. By the second and third years of observation, this

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[3] By the end of January 1993, none of the patients in the Lakeville Hospital who were alive at the time the hospital closings were announced and later transferred had died. Ten of the Rutland Heights Hospital patients died before the end of January 1993, representing about 18 percent of patients in that hospital when the closings were announced.

Table 1. Characteristics of Cushing Hospital Residents by Year[1]

		PERCENT		AVERAGE		
Year	Number of Patients	Female	Resident for < 1yr.	Age	Age at Admit	Length of Stay[2]
1971	99	55.56	100	79.9	79.4	0.44
1972	170	55.88	55.9	79.0	78.2	0.89
1973	255	55.29	49.0	78.4	77.2	1.22
1974	309	55.99	32.4	78.2	76.5	1.67
1975	351	56.70	28.8	78.5	76.4	2.04
1976	365	60.55	18.9	78.7	76.1	2.60
1977	379	60.69	17.9	78.9	75.9	3.02
1978	398	62.31	18.6	79.9	76.5	3.44
1979	405	64.20	16.3	80.3	76.5	3.82
1980	375	65.87	12.3	80.9	76.6	4.39
1981	363	66.67	13.5	81.6	76.8	4.78
1982	339	66.96	13.3	81.9	76.9	5.07
1983	341	68.62	17.0	82.3	77.1	5.26
1984	349	70.77	22.1	82.3	77.2	5.15
1985	344	71.51	18.0	82.7	77.6	5.12
1986	325	74.15	11.7	83.0	77.4	5.61
1987	322	73.60	16.5	83.0	77.5	5.46
1988	291	75.26	10.3	83.3	77.4	5.86
1989	248	76.21	5.2	83.8	77.1	6.70
1990	243	73.66	10.7	84.1	77.3	6.83
1991	232	72.41	12.1	84.0	77.2	6.86
7/91[3]	217	73.39	12.4	83.8	76.8	6.45

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[1] Characteristics of the patient population on January 1 of each year for patients admitted on or after January 1, 1970 and still in the hospital at the beginning of the referenced year.

[2] Average length of stay in years.

[3] Resident on July 1, 1991.

proportion had dropped to about one half. The percentage of patients with short residencies continued to decline over the first decade of observation and then stabilized in the second (about 1980 to 1991), usually averaging between 10 percent and 20 percent during the latter time period.

The average age of Cushing residents increased slightly across the two decades of observation ranging from a low of 78.2 years in 1974 to a high of 84.1 years in 1990. The average age at admission for Cushing residents remained quite stable over time at about 77 years of age.

The average length of stay of Cushing patients in the historical file increased by about three years per decade. By the end of the observation period, Cushing patients had been residing in the hospital for nearly seven years on average.

Table 2 displays characteristics of annual Cushing Hospital admission cohorts. It differs from Table 1 in that Table 2 presents the characteristics of patients *admitted* during the 12 months of the calendar year rather than the characteristics of *residents* on the first of the year.

The average age of Cushing admission cohorts ranged from a low of 77 years in 1973 to a high of 81.4 years in 1982. As with the average age at admission for residents (shown in Table 1), there was no clear trend in the average age of admittees across the years. However, the average age of admittees (Table 2) was consistently two to three years higher than the average age at admission of current residents (Table 1), most likely owing to the lower survival rates of older admittees.

Table 3. Cushing Hospital Patient Mortality Over Time by Sex (Patients admitted since Jan. 1, 1970)

YEAR[1]	DEATH RATES		
	All	Men	Women
1970	36.67	45.24	29.17
1971	26.59	35.37	20.10
1972	23.06	30.70	17.36
1973	20.75	21.09	20.47
1974	21.50	20.89	21.99
1975	19.35	25.08	15.24
1976	17.72	24.57	13.39
1977	12.86	17.87	9.96
1978	16.56	13.84	18.08
1979	24.25	29.41	21.41
1980	16.02	20.00	13.92
1981	21.96	25.44	20.22
1982	25.19	28.17	23.81
1983	20.37	27.49	17.28
1984	23.67	37.50	18.18
1985	18.29	24.85	15.97
1986	19.11	28.22	15.91
1987	19.05	25.50	16.86
1988	17.21	18.75	16.71
1989	19.42	20.97	18.89
1990	19.78	33.06	14.97

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[1] Death rate refers to mortality experience from July 1 of specified year through June 30 of the following year. It is estimated using the formula:

$$\left(\frac{D_x}{P_x}\right) X\ 100$$

where, D_x is the number of deaths to patients from July 1 of the specified year, x, through June 30 of the following year; and,
P_x is the number of patients at risk of death in the hospital for the specified year, x.

Assuming that patients entering and exiting the hospital during the year were at risk of death for 1/2 the year, on average, the population at risk, P_x, is estimated:

$$N_x + \left(\frac{A_x}{2}\right) - \frac{(D_x + L_x)}{2}$$

where, N_x is the Number of patients alive in the hospital on July 1 of the specified year, x;
A_x is the number of patients admitted during the year, i.e., from July 1 of the specified year, x, through June 30 of the next year;
D_x is the number of deaths to patients during the year; and,
L_x is the number of patients discharged alive during the year.

Table 4. Quarterly Death Rates in the Three Years Surrounding the Public Hospital Closing by Sex[1]

QUARTER	DEATH RATES		
	All	Men	Women
1/1/90 - 3/31/90	25.56	24.96	25.79
4/1/90 - 6/30/90	15.10	31.34	9.17
7/1/90 - 9/30/90	18.57	12.21	21.00
10/1/90 - 12/31/90	16.88	24.41	14.00
1/1/91 - 3/31/91	19.15	36.87	12.14
4/1/91 - 6/30/91	23.38	52.60	12.38
7/1/91 - 9/30/91	28.34	20.88	31.12
10/1/91 - 12/31/91	59.09	70.01	55.02
1/1/92 - 3/31/92	25.65	35.65	22.11
4/1/92 - 6/30/92	27.75	71.99	13.37
7/1/92 - 9/30/92	21.30	35.01	17.25
10/1/92 - 12/31/92	24.80	24.80	17.71

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[1] To make the quarterly death rates comparable to annual death rates, they are calculated using the following formula:

$$\frac{\left(\frac{365}{n_q}\right) x\, D_q}{P_q}\ x\ 100$$

where, n_q is the number of days in the quarter;
D_q is the number of deaths in the quarter; and,
P_q is the number of patients alive in the hospital at the mid-point of the quarter.

Table 2. Characteristics of Cushing Hospital Admission Cohorts[1] Over Time

ADMISSION COHORT	AVERAGE AGE AT ADMISSION	PERCENT FEMALE	NUMBER ADMITTED
1970	79.3	51.26	118
1971	77.3	53.28	121
1972	77.3	52.03	147
1973	77.0	52.50	114
1974	77.4	56.03	114
1975	78.8	63.22	87
1976	78.5	62.50	80
1977	80.7	56.79	80
1978	79.4	64.86	74
1979	79.7	62.07	58
1980	81.1	62.07	57
1981	79.5	64.29	56
1982	81.4	69.44	72
1983	80.6	68.42	95
1984	81.1	62.34	77
1985	79.1	65.38	52
1986	80.2	66.13	62
1987	79.4	65.79	38
1988	81.3	60.00	15
1989	80.7	62.07	29
1990	79.1	58.33	36
1991	79.8	38.46	13

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[1] An admission cohort is all patients admitted to the hospital between January 1 and December 31 of the referenced year.

Similarly, the lower survival chances of men as compared to women are reflected in the difference between the percent of female admittees and the percent of female residents. Men and women fairly evenly comprise admittees in the early years of observation. From the late 1970's until the last year of observation nearly two thirds of admittees are women. In contrast, recall from Table 1, that by the end of the observation period, nearly three quarters of Cushing hospital residents were women.

The annual number of admissions to Cushing Hospital also declined over time from well over 100 in the early years to well under 50 in the final years of observation. The sharp decline in admissions toward the end of the period reflects the anticipation of--and some uncertainty regarding--the closing of this hospital.

Annual death rates of the historical Cushing Hospital patient sample are shown in Table 3. Although there is a considerable amount of variation in these rates, during the early 1980's they seemed to hover just above 20 deaths per 100 patients. During the latter half of the decade, the rate was fairly stable at just below 20 deaths per 100 patients. With the exception of 1974, men consistently experienced higher annual death rates than women patients. For women, annual death rates were well below 20 per 100 during most of the 1980's. In contrast, the annual death rates for men in this decade were almost always above 20--sometimes above 30--per 100 patients.

Table 4 allows a crude examination of changes in death rates immediately following the announcement of the hospital closing on July 1, 1991. This table displays the quarterly death rates for patients in the six quarters (or year and a half) immediately before and after the hospital closing was announced. Again, the death rates are not stable before or after the closing. However, while the death rates for the total patient population ranged from 15 to 25.5 per 100 in the period preceding the closing announcement, the death rates following the closing announcement ranged from 21 to 59 per 100 patients. Similar differences are found in the pre- and post-closing announcement death rates for men and women. Thus it appears that the hospital closing announcement itself may have had some effect on patient mortality rates such that patients in the Cushing Hospital at the time the closing was announced experienced an increased risk of death.

Monthly death rates after the transfers were made from Cushing Hospital are approximated in Table 5. This table shows the death rates among patients who were actually moved from Cushing by four-week intervals immediately following the transfers. These rates are annualized so that they can be compared with the annual death rates among the historical Cushing patient population. Because of the small sample size and relatively small number of deaths, these rates could not be calculated separately for men and women.

Death rates among transferred patients are remarkably high immediately following the move. During the first eight weeks after transfer, death rates were about three times higher than they were among the historical sample of Cushing patients. The relatively small number of transferred patients and the short intervals analyzed in Table 5 make the trend appear somewhat erratic. What can be discerned from this table, however, is that death rates in the six four-week intervals immediately following transfer appear elevated, then steadily decline, so that transferred patients surviving the first year after transfer experience death rates comparable to patients who were not transferred.

Table 5. Death Rates of Patients After Transfer from Cushing Hospital by Four-week Intervals[1]

Four-week Interval After Transfer	Death Rate in the Interval
1	64.9
2	68.3
3	14.1
4	50.7
5	29.8
6	15.2
7	30.9
8	47.7
9	49.5
10	34.1
11	ND
12	8.7
13	17.5
14	17.8
15	18.0

ND = No deaths in the interval

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[1] The four-week death rate refers to mortality experience in the four-week intervals immediately following patients' transfer from the Cushing Hospital. The exact dates vary by patient according to when the transfer occurred. In order to make the four-week death rate comparable to the annual death rate it is inflated by the ratio of the number of days in the year to the number of days (28) over which deaths are observed using the following formula:

$$\left(\frac{\frac{365}{28} \; X \; D_i}{P_i}\right) X \; 100$$

where, D_i is the number of deaths to transferred patients in the time interval, i, since transfer; and,
P_i is the number of transferred patients at risk of death in the interval, i.

Table 6 presents the results of a formal test for the effects of the hospital closing on patient mortality. A Cox regression was performed to determine if patients residing in Cushing Hospital at the time of its closing had reduced survival chances compared to historical patients (at that facility) once sex, age at admission, and length of stay at Cushing were controlled. The findings regarding sex and age at admission are consistent with the interpretation of the differences between characteristics of admissions cohorts and the resident population at Cushing. Women had about two thirds the likelihood of dying as men and a ten-year increase in a patient's age at admission was associated with a 50 percent greater chance of death.

More important, the results indicate that patients experiencing the hospital closure had significantly reduced survival chances, with a 46 percent greater likelihood of dying than their "untraumatized" counterparts.

V. DISCUSSION

Although our finding of a much higher risk of death among relocated Cushing patients is not consistent with much of the earlier work on transfer trauma, we do not find this entirely surprising. The patients of Cushing Hospital may have been an older, more vulnerable group of institutional residents than has commonly been studied. The transfer was entirely involuntary and patients were frequently reported by their immediate relatives to have felt anxious, upset, and often angry about the move (Leventhal & Caro, 1992).

Furthermore, the circumstances surrounding every individual and mass relocation are unique. In an empirical analysis, it is difficult to account for all of the factors that may influence the outcome of a move. For this analysis, only the most basic information about the

Table 6. Effect of Cushing Hospital Closing on Patient Mortality Controlling for Gender and Admission Age: Cox Regression coefficients and hazards ratios

	COEFFICIENT	HAZARDS RATIO	t
AFTER	0.3787	1.460	3.12
FEMALE	-0.4875	.614	-9.02
ADMAGE	0.0524	1.054	14.54

X^2=260.49
n=1808

AFTER: 1=Cushing patient after hospital closing announcement
0=Cushing patient before hospital closing announcement
FEMALE: 1=female, 0=male
ADMAGE: Age in years at admission to Cushing Hospital

characteristics of individual patients could be included, and it was not possible to test for the effects of the involuntary nature of the move or the preparation procedures. However, most Cushing patients were reported by Department of Public Health personnel to be severely cognitively impaired as well as severely chronically ill. The cognitive impairment of patients probably compounded difficulties in preparing them for the move.

Clearly, there are factors in addition to the vulnerability of Cushing patients that may have contributed to the observed increase in mortality among transferred patients. The movement of patients to a large number of different facilities probably made it difficult to provide an organized, comprehensive orientation to the new environments for all Cushing patients. Many studies that find positive or no effects of relocation are based on transfers of whole patient populations to one new facility. Such transfers allow the development of comprehensive preparation programs that can reach many patients efficiently.

The scattering of patients across many facilities also meant that there was little if any continuity between institutions in terms of staff and peers. Earlier research suggests that when patients are relocated to new facilities with familiar staff and/or patients they fare better (Thorson, 1988).

Finally, the similarity of pre- and post-relocation environments has been shown to be associated with the outcomes of transfers (Thorson, 1988). In spite of the high quality of the nursing homes in which patients were placed, it is likely that certain differences between the chronic disease hospital and the nursing homes contributed to the poor experience of so many Cushing patients. The nursing homes place a greater emphasis on rehabilitation than the chronic disease hospital had. This may have led patients who were interviewed following transfer to characterize the nursing homes as "faster paced" (Glickman & Caro, 1993b). Patients also reported feeling that they received less attention from staff in the new environment. In the few years before Cushing Hospital closed, admissions declined. This most likely produced a greater staff-to-patient ratio than in most nursing homes, augmenting the difference between the new and old residence for patients.

The findings suggest that more research is needed on the circumstances under which relocation places older, chronically ill patients at risk. From time to time, the closing of facilities does require large-scale, involuntary relocation of patients. A better understanding of the risks and measures to counteract them is needed to minimize the hazards for patients.

This report is only one part of a comprehensive study of the effects of closing several state hospitals in Massachusetts. In evaluating the overall merit of these closings, many factors must be considered. Although this report provides evidence that some patients were adversely affected, other reports indicate that the closings did achieve cost savings (Verma, 1994), and many surviving patients and their families assessed the move positively (Leventhal & Caro, 1992; Glickman & Caro, 1993).

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GERONTOLOGY INSTITUTE

The University of Massachusetts Boston

Established in 1984, the Gerontology Institute at the University of Massachusetts Boston has as its mission:

1) To focus attention on the economic, social, and political issues and problems confronting the aging population; and 2) To strengthen the ability of older people to make productive contributions in aging services and public policy development.

The Institute furthers the University commitment to the study and development of social policy on aging. Policy research and education is conducted on issues affecting older people and their families, and the Institute serves as an intellectual center for policy-relevant issues in aging. In addition, it assists national, state, and local organizations in analyzing policy issues and formulating policy options on matters concerning the elderly. Core funding is provided by the Massachusetts Legislature. Major projects are funded through grants and contracts.

Programs of the Institute are carried out through the Frank J. Manning Research Division and the Public Policy Division. The three major priority areas for both divisions are: 1) productive aging, that is, opportunities for older people to play useful social roles; 2) long-term care for the elderly; and 3) economic security. The Institute pays particular attention to the special needs of racial and ethnic minority elderly.

The University offers an interdisciplinary Ph.D. program in Gerontology with an emphasis in social policy. It is one of two such programs in the United States. The Gerontology Center in the College of Public and Community Service is a teaching resource for the Ph.D. program along with the Gerontology Institute. In addition, the Institute provides doctoral students with experience in research and policy analysis.

The Institute supports the University`s Gerontology Certificate programs as well. A one-year program of concentrated study, the Frank J. Manning Certificate Program in Gerontology prepares older learners for roles in aging services. Most students are over 60 years of age. Through an advanced Gerontological Social Policy Certificate program selected graduates of the Manning program participate in applied research projects within the Institute. The regular involvement of older people helps to assure that Institute projects reflect the concerns of older people.

The Institute also publishes a scholarly peer-reviewed quarterly with an international perspective, the Journal of Aging & Social Policy.

Since its formation, the Institute has been directed by Scott A. Bass, Ph.D.. It has a diverse, multigenerational, multicultural permanent faculty and staff of approximately 16 people.